

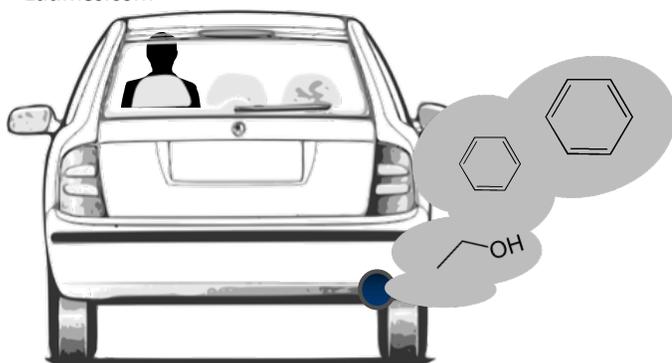


NOAA CSL's Urban Air Quality Research 2021

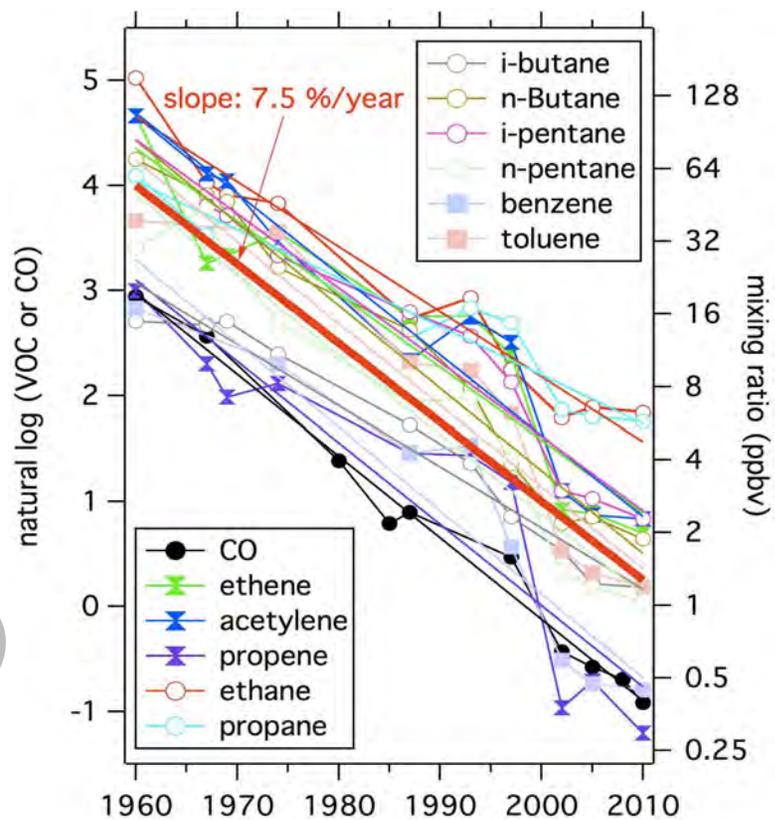
The Past...



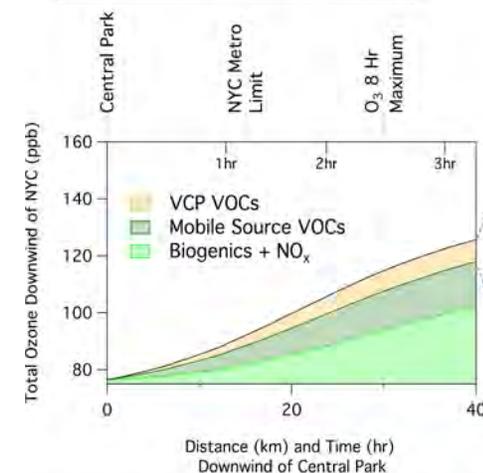
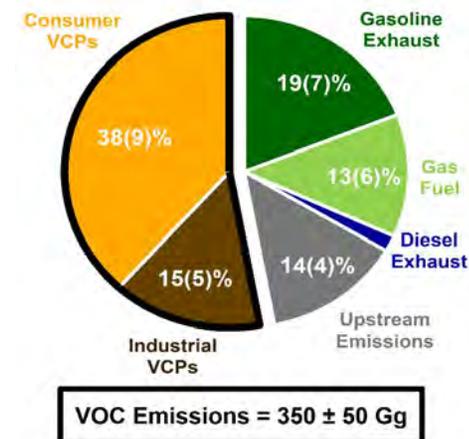
Latimes.com



The Transition...



The Present...



SUNVEx 2021 - Southwest Urban NOx and VOC Experiment

June 24-July 31 Las Vegas:

Drive Boulder to Vegas
1-3 drive in Vegas
set-up Jerome Mack site
1-3 drives

Aug 1- Sep 5 Los Angeles

Sep 5- Sep 8 Las Vegas:

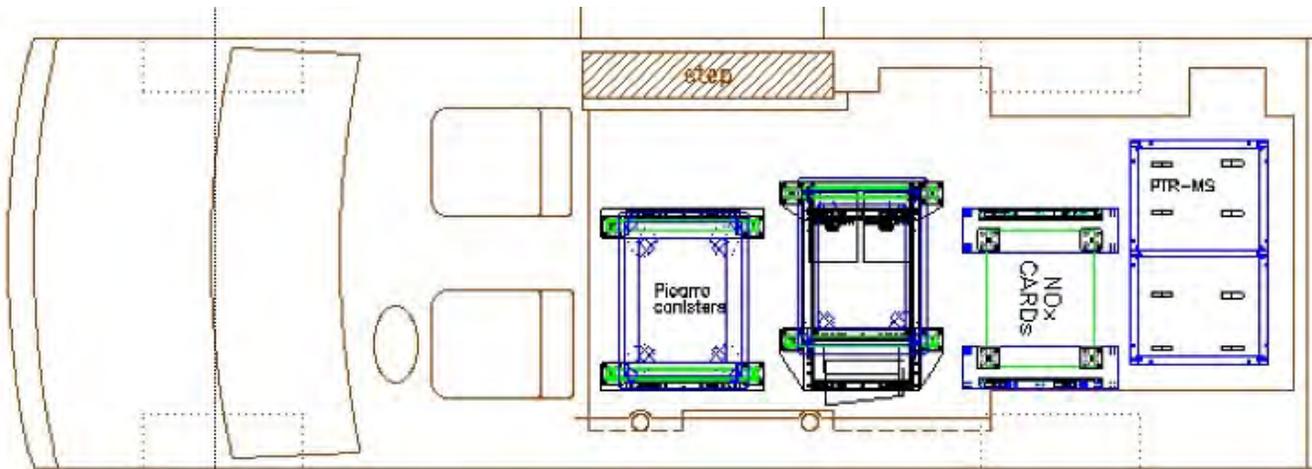
Drive Vegas to LA
1-3 drive in Vegas
drive Vegas to Boulder

Mobile laboratory and ground site in Las Vegas
and Los Angeles



csl.noaa.gov/projects/sunvex/

Mobile Lab Layout



Van instruments:

- PTR-ToF
- NOxCard (NO, NO₂, NO_y, O₃)
- CO, CO₂, CH₄, H₂O
- Canisters
- Met, GPS

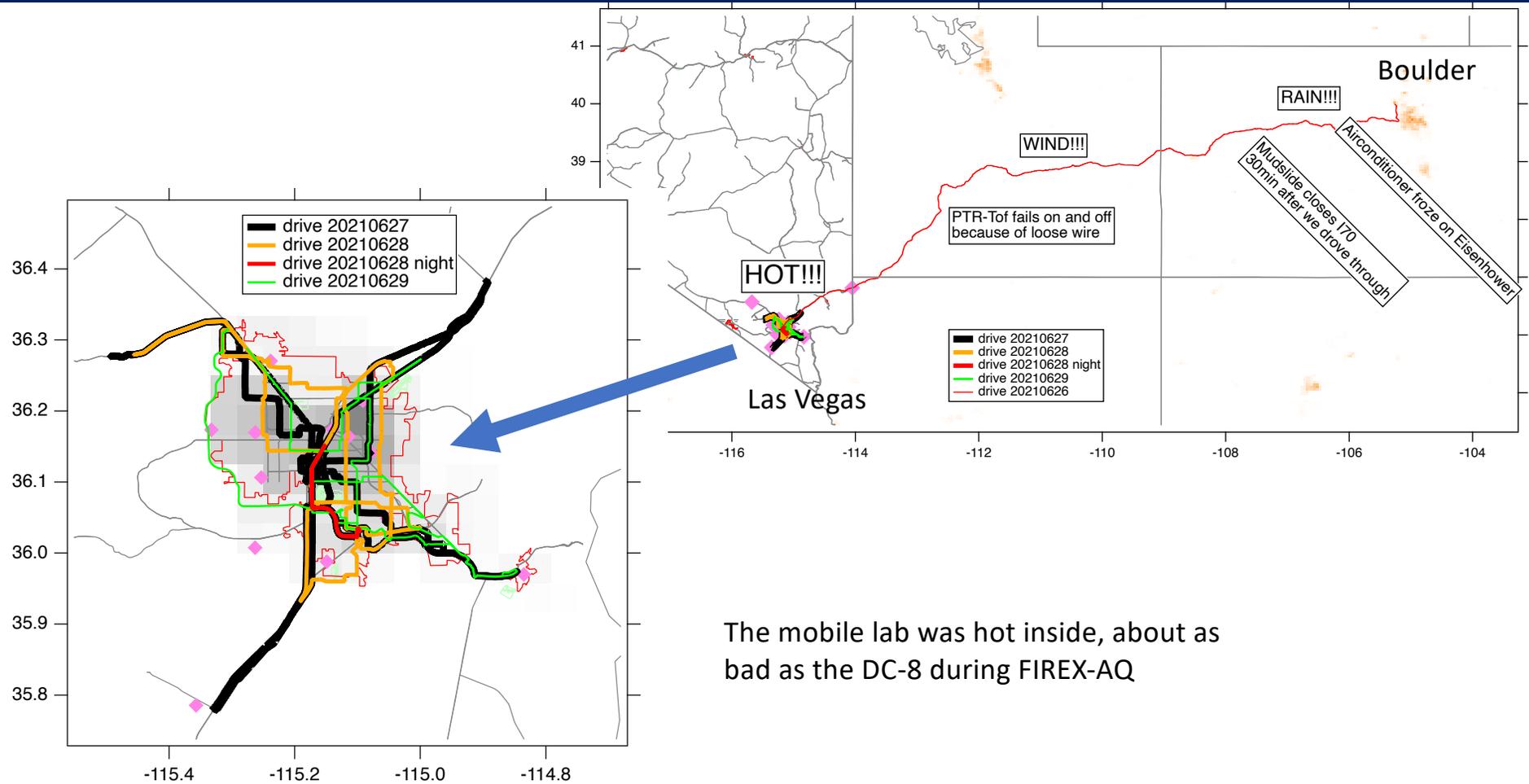
VOC measurements:

- PTR-ToF:
- 1-s time resolution
 - full mass spectrum with high mass resolution (up to 500 compounds)
 - oxygenates, biogenics, biomass burning tracers, alkenes, aromatics, ...

Canister samples with of-line GC-MS analysis:

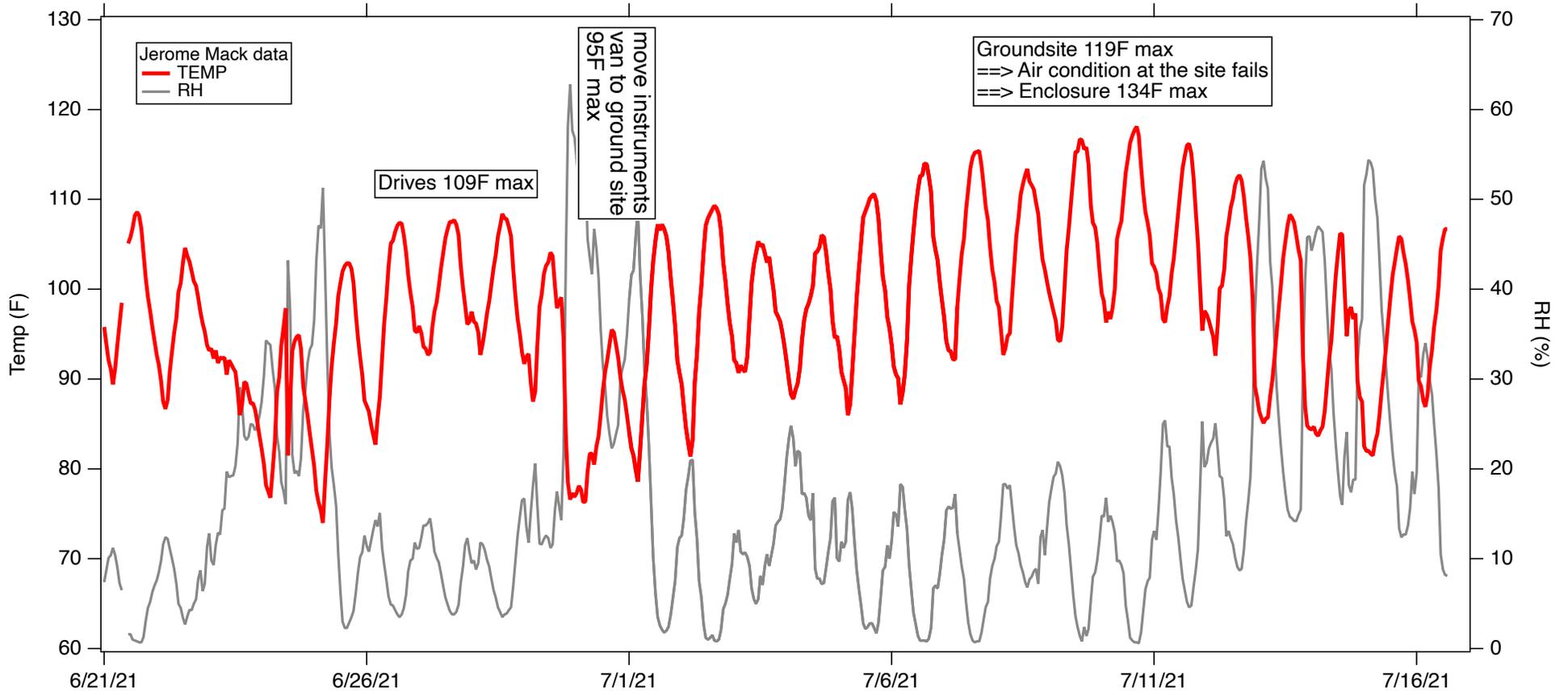
- alkanes, alkenes, aromatics, halocarbons, ...

Mobile Lab Drives: a Typical Day in the Field

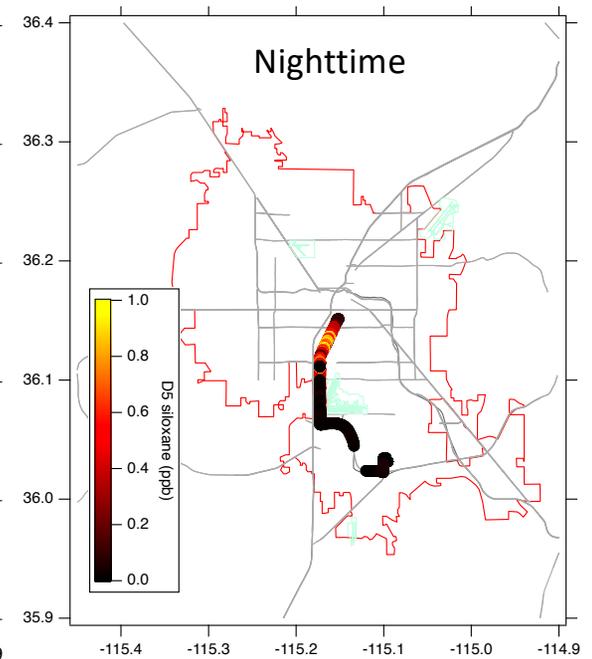
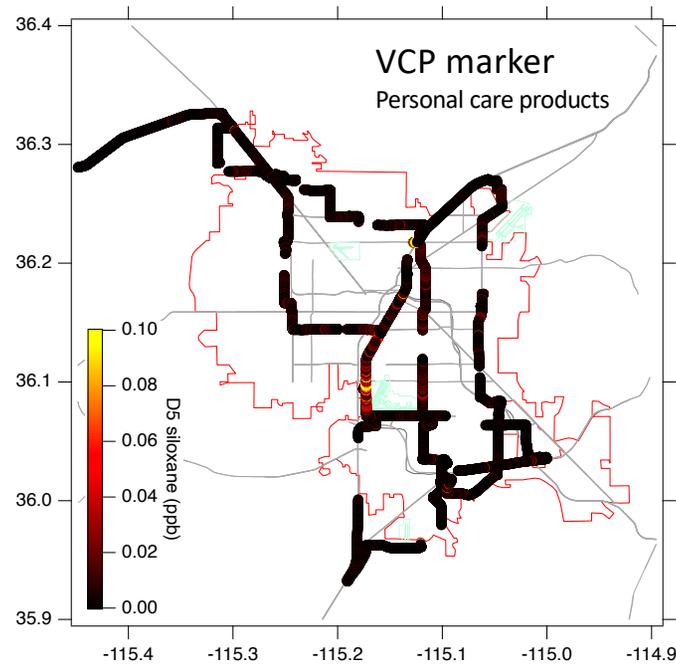
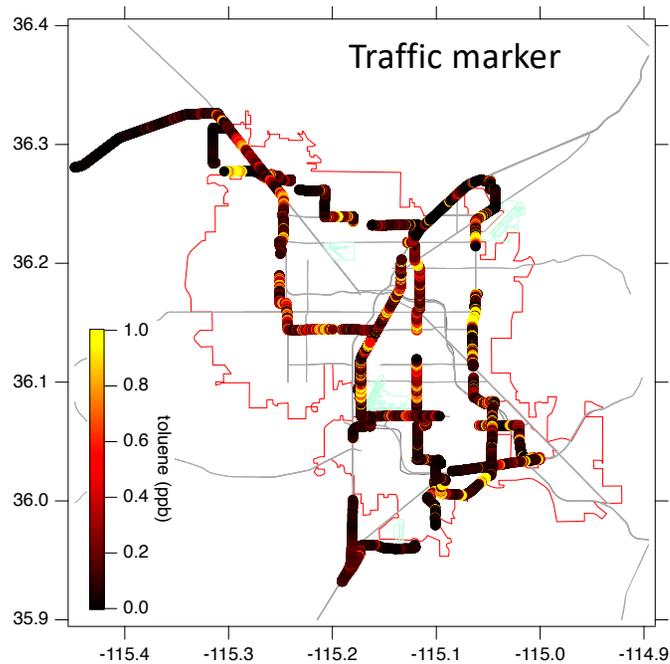


The mobile lab was hot inside, about as bad as the DC-8 during FIREX-AQ

Mobile Lab Drives



Mobile Lab Drives in Las Vegas June 28, 2021



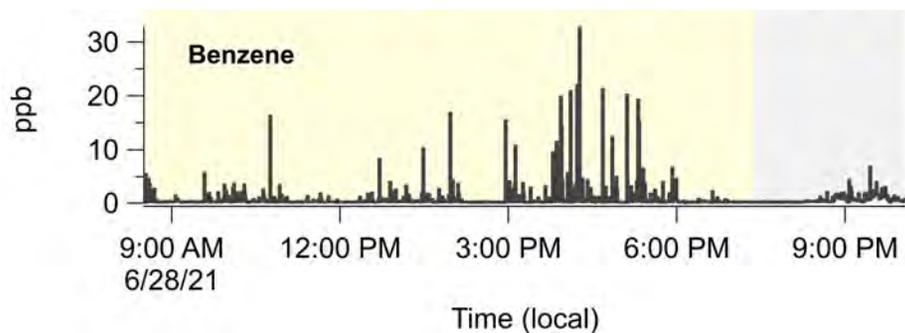
Mobile Lab Drives in Las Vegas June 28, 2021



Day time

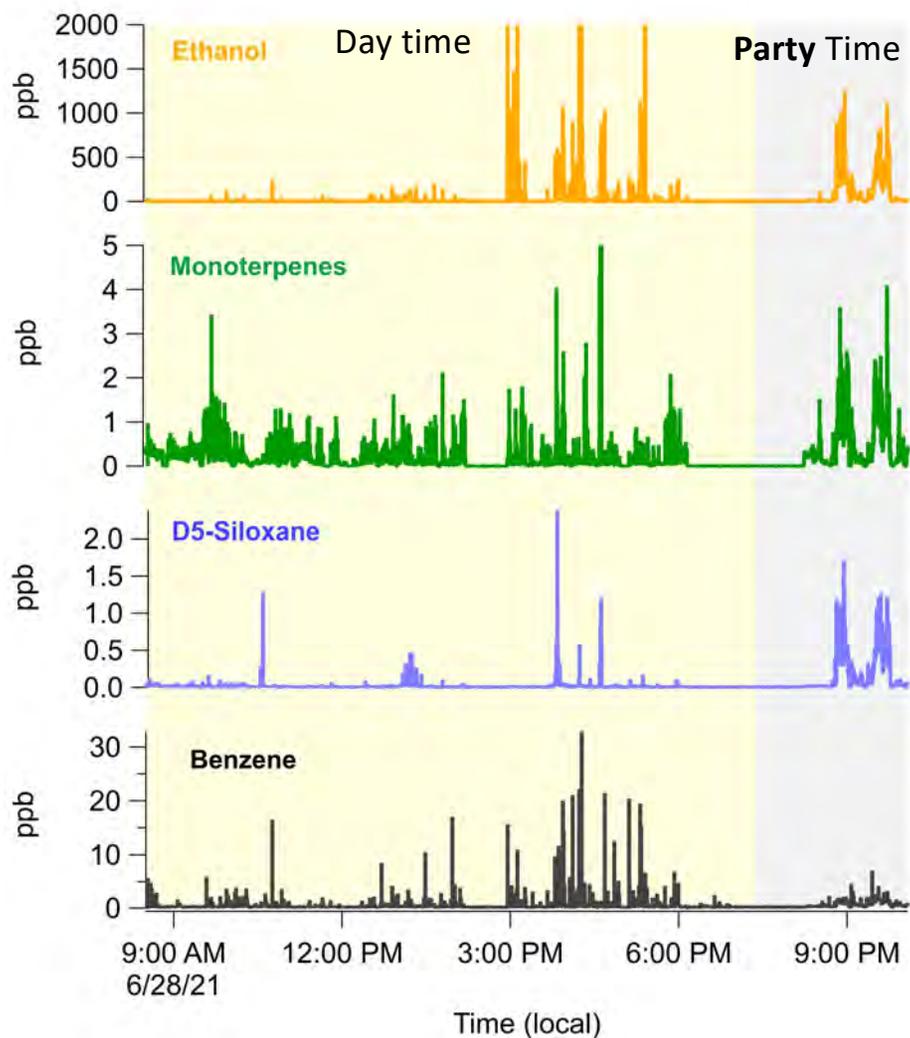


Night Time



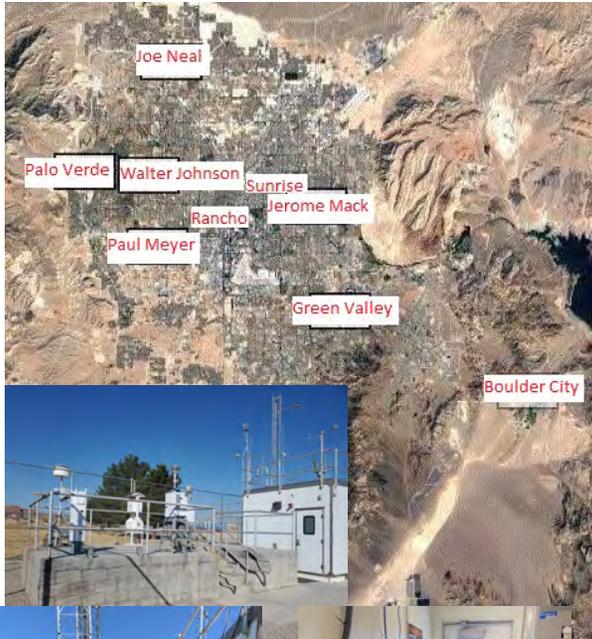
Traffic seems to play a role throughout the day. Traffic signals follow very typical patterns (highest during the day and along major roads)

Mobile Lab Drives in Las Vegas June 28, 2021

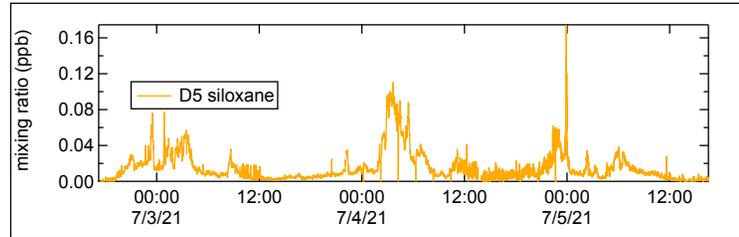


Our other VCP tracers are also high. **Very** clear signal for anthropogenic monoterpenes (fragrances, > 1 ppb) and sustained ethanol signals exceeding 500 ppb on the strip at night

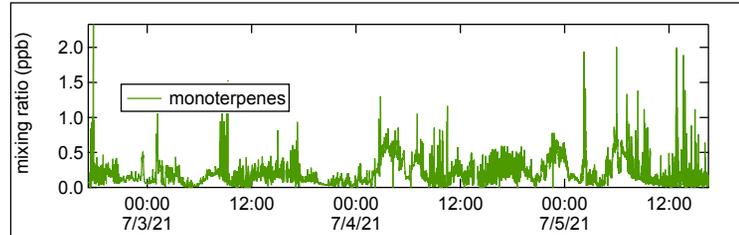
Driving in Las Vegas and Ground Site at Jerome Mack



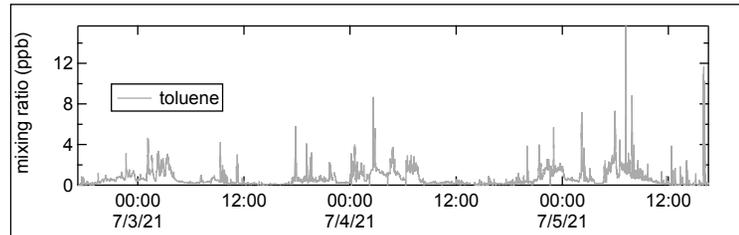
Very high mixing ratios at night



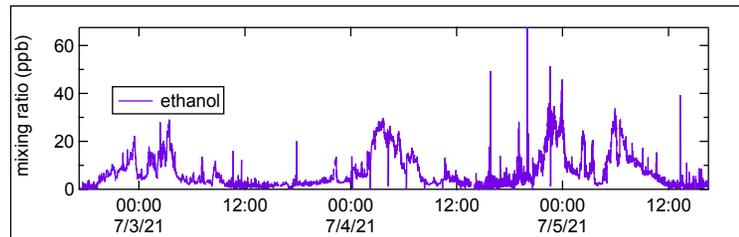
Personal care products



Fragrances (verify with GC measurements)

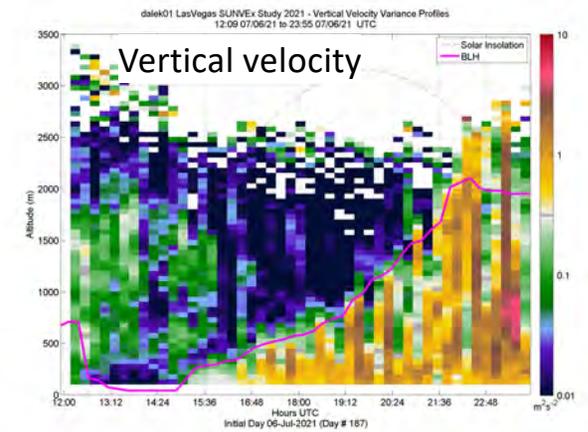
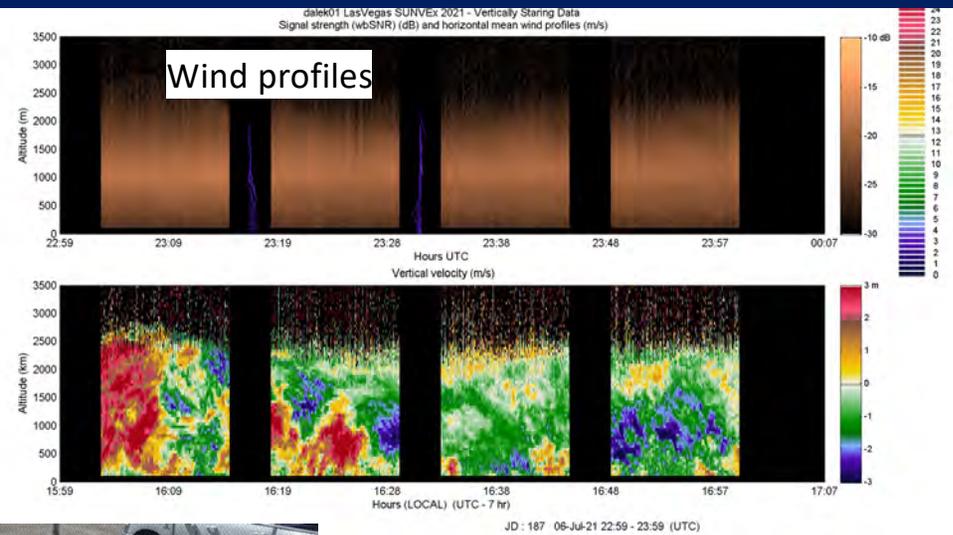
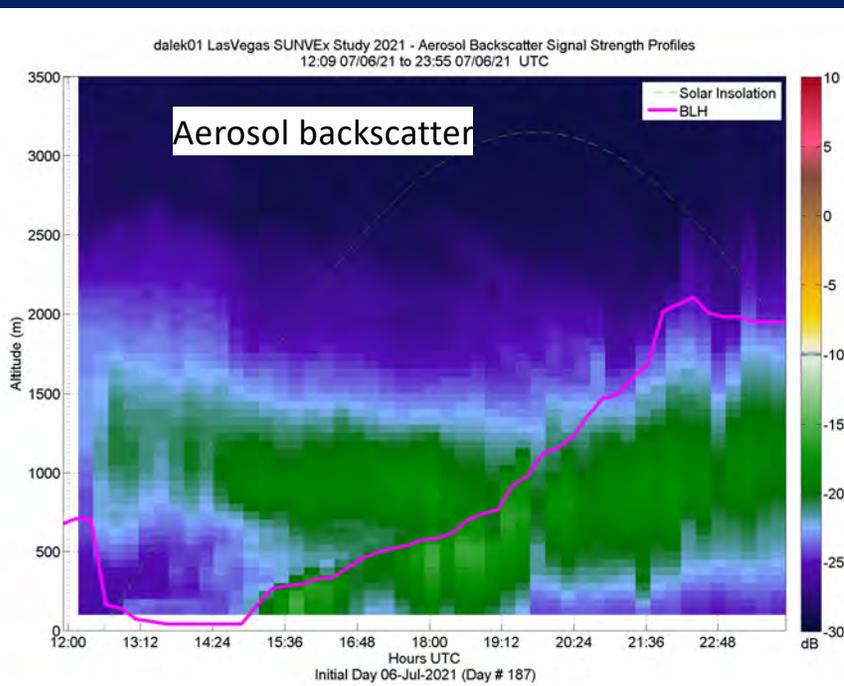


Traffic



VCPs+gasoline

Mobile Doppler Lidar at North Las Vegas Airport



Contact: Alan Brewer
<https://csl.noaa.gov/groups/csl3/measurements/2021sunvex/latest.html>

SUNVEx 2021 - Southwest Urban NOx and VOC Experiment

Next steps:

Aug 1- Sep 5 Los Angeles

Drive to LA

Gooseneck trailer to LA

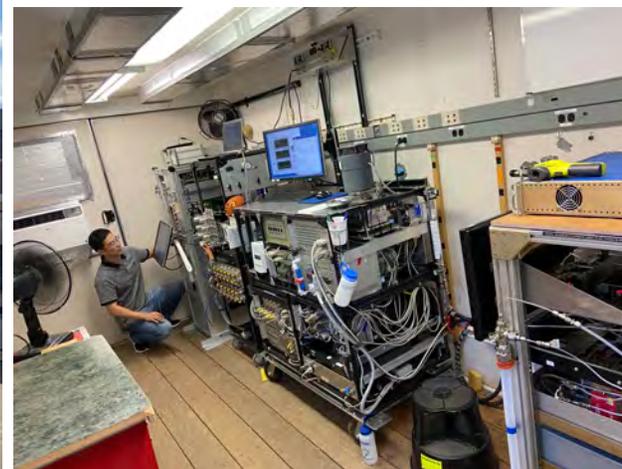
Sep 5- Sep 8 Las Vegas:

Drive Vegas to LA

1-3 drive in Vegas

drive Vegas to Boulder

Mobile laboratory and ground site in Las Vegas
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[csl.noaa.gov/projects/sunvex/](https://www.csl.noaa.gov/projects/sunvex/)